

Hartington Telecommunications Co., Inc._Project E_Attachment Letter E_REV 10052023

NBBP Program Year 2023 (C-5484)

Technical Capability Statement

- a) A description of the applicant’s experience providing broadband and whether they currently provide broadband at the minimum 100Mbps/100Mbps speeds.

Hartington Telecommunications Co., Inc. (Hartelco) has been offering broadband services since 1995. Hartelco started off with Dial Up Internet Access in 1995, DSL Internet Access in 1999, Fiber to the node-Rural in 2006, Fiber to the home in the town of Hartington, NE in 2009, and 2013 Fiber to the home in the Rural areas of their Hartington ILEC exchange. Hartelco offers its customers voice, video, and broadband internet services (Triple Play). Hartelco currently offers broadband services to approximately 901 subscribers. Hartelco has been Gig-Capable Certified with NTCA since June of 2017.

Hartelco has completed the Nebraska Broadband Bridge Program Grant NorthStar project that it received in January 2022. The company connected customers to advanced telecommunication services through the installation of fiber to their home.

Based on this, our technical capability described in subsequent paragraphs below, and our long history in the telecommunications industry, Hartington has the technical capability to meet the statutory technical and speed requirements in place throughout the fifteen-year period.

- Does provider currently provide broadband at a minimum of 100/100?

The applicant currently provides broadband at a minimum of 100/100 Mbps as indicated in Attachment Letter C_REV 10052023.

- b) The useful life of the facilities to be built and how the service area will be maintained throughout the useful life of the facilities.

The technical components used and the expected useful life of the facilities.

	<u>RUS Estimate</u>	<u>Engineer Estimate</u>
Buried fiber	20 years	25-50 years.
Electronics equipment	10.67 years	10-15 years
ONTS	5-10 years	7-10 years

Provide a description of how the service area will be maintained throughout the useful life of the facilities.

Hartington uses our current staff to maintain network infrastructure using common industry practices for each of the services provided. The network and services will be monitored and supported 24x7x365 by the Hartington's current support staff. The applicant will leverage existing staff and processes to operate the proposed network deployment. Troubleshooting and service provisioning will be handled by applicant office staff using a combination of existing automated systems. Orders for services will be taken by our customer service representatives. Equipment will be provisioned by our office technicians and professional installation will be completed by our outside plant technicians. In addition, Hartington maintains service contracts with key vendors, contractors, and professional service firms if additional assistance is required. Hartington currently complies with and successfully fulfills CAF BLS (Connect America Fund Broadband Loop Support) speed testing requirements.

- c) How the project will be resilient and sustainable in the long-term. This statement should also include the number and skill level of technical staff that will be dedicated to serving the project area once the project is complete.

By using industry standard equipment, furnished by a long-term equipment supplier, the design and layout of the network is done in such a way as to make access to the equipment quick, easy, and safe. The design of the CO and cabinets allows space for additional equipment as the demand increases. The outside plant places extra fiber at key locations to allow for growth.

The network is being designed using a combination of active and passive components. The active equipment being used has high reliability and may only need to be accessed once a year. For the passive components, such as splitter, splice cases and the optical fiber, these will only need to be accessed in the cases of physical damage to these components. This would be fiber cuts or damage to a locate pedestal or handhole. This type of damage is hard to predict. To minimize damage to the outside plant, warning signage is used to mark the fiber path. The placement of locate pedestal and handholes is done to minimize the possibility of them being damaged.

Hartelco currently has four (4) Central office equipment (COE) and Outside Plant (OSP) employees and three (3) computer technicians. Hartelco currently uses their own staff to operate and maintain their current FTTH system and will use their staff to operate and maintain the FTTH facilities deployed.

- d) The expected useful life of the facilities to be built including a statement as to the technological components used, and, if applicable, which components may require more frequent repair or replacement.

The technical components used and the expected useful life of the facilities.

	<u>RUS Estimate</u>	<u>Engineer Estimate</u>
Buried fiber	20 years	25-50 years.
Electronics equipment	10.67 years	10-15 years
ONTS	5-10 years	7-10 years

Components which may require more frequent repair:

The most frequently repaired/replaced items in a FTTH network will be at the customer premise. These items could include: power supply/battery backup, ONT and premise wiring.

- e) A detailed description of the proposed network architecture including homes passed, fiber miles, and the specific technology to be used to provide service to end users.

Homes Passed: 405

Fiber Miles: 34.91

Hartelco currently uses 10GE Active Ethernet (IEEE 802.3ae standard) and 1GE Active Ethernet (802.3ah standard) and NG-PON, using GPON (ITU G.984) and XGS-PON (ITU-T G.9807.1 standard) fiber-to-the-premises (FTTP) for their last-mile technology to supply services to their customers. Interconnections are handled separately for voice and data. For voice, Hartelco utilizes a Ribbon C15 Class 5 switch connected to the Public Switched Telephone Network (PSTN) via CenturyLink toll center in Norfolk, Nebraska using an Optical Network connection and with Inteliquent via redundant SIP trunks. For Broadband, Hartelco has two optical ethernet connections utilizing Open Shortest Path First (OSPF) and Border Gateway Protocol (BGP) to uplink to a Tier 2 broadband provider. The total capacity of these optical connections is 2.3 Gbps.

For the middle mile network, Hartelco utilizes the DZS NMS (DZS CONNECT-ACS-1K) to monitor individual customer usage and if peak usage frequently exceeds 75% on a 15-minute average, Hartelco will be capable of upgrading their last mile service to 10Gbps Active Ethernet should the customer choose to upgrade their service beyond 1Gpbs.

For the middle mile network, Hartelco utilizes the DZS NMS (DZS CONNECT-ACS-1K) to monitor every optical ethernet link and if peak average utilization over a 5-minute average exceeds 75%, the system being proposed is capable of adding a second 10 Gbps of bandwidth via IEEE 802.1ax (formerly IEEE 802.3ad) Link Aggregation Control Protocol (LACP) to effectively double the bandwidth of that link.

- f) Describe their technical capability to meet the requirement to provide a minimum 100/100 Mbps in all locations that receive grant funding, and their plans to meet the minimum statutory technical and speed requirements in place for the NBBP throughout the fifteen-year period.

Hartington Telecommunications Co., Inc., has been in business since 1905 and is currently providing fiber-based local and long-distance telephone service, Internet service, and construction services in Nebraska; Hartington has been providing Internet Access Service since 1995 (Dial Up Internet Access in 1995, DSL in 1999, Fiber to the node in rural Hartington exchange in 2009, Fiber-to-the-Home in-town in 2009, and Fiber-to-the-Home in rural areas in 2013). In addition, its parent company is part owner of OPTK Networks (formerly Nebraska Link LLC) which provides telecommunications transport service throughout Nebraska. Hartington currently has 12 employees including four central office and outside plant technicians, and three computer technicians. Having been in business for over 116 years, Hartington has a long history of success with the business operations and financial resources needed to be successful and has demonstrated the capability to maintain the network over the long run.